Testimony on H.R. 3480
"Upper Mississippi River Basin Protection Act"

Before House Committee on Resources
Subcommittee on Water and Power

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Doug Daigle

Hypoxia Program Director

Mississippi River Basin Alliance

Doug Daigle
Hypoxia Program Director
Mississippi River Basin Alliance
400 Magazine St., Suite 499
New Orleans, La. 70130

Dear Mr. Chairman and members of the Subcommittee,

I welcome the opportunity to speak to you regarding the bill H.R. 3480, the "Upper Mississippi River Protection Act", authored by Representative Ron Kind of Wisconsin. This bill is of particular interest to the organization I represent, the Mississippi River Basin Alliance (MRBA), because it will help to address one of our key issues of concern, as well as a major problem facing the basin and the country, which is nutrient pollution in the river system and growth of hypoxia in the northern Gulf of Mexico.

MRBA is a non-profit organization with over 130 member groups along the length of the river. Our main office is in Minneapolis, and regional offices are located in St. Louis and New Orleans. The mission of MRBA is to protect and restore the health of the river system and the communities who depend on it. The founding of the organization was premised on the realization that the Mississippi River, though large, was one system and that its problems needed to be addressed in a basin-wide context.

MRBA adopted the hypoxic zone in the Gulf of Mexico as one of its key issues for just this reason. A substantial body of scientific research has described the process by which this zone of low oxygen manifests itself in Louisiana's coastal waters.[1] The occurrence of the hypoxic zone is a result of interactions of nutrients such as nitrogen carried by the Mississippi River, channelization of the river and loss of riverine wetlands in the basin,

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and the stratification of fresh and salt water layers in the Gulf. Over half of the nitrate load in the Mississippi enters above its confluence with the Ohio.

The highest nitrogen loads enter the river from basins in the upper Midwest. The majority of the nitrogen is believed to come from non-point sources, such as agricultural runoff, although municipal and industrial wastewater and (to a lesser extent) atmospheric deposition of nitrates from fossil fuel combustion also make a contribution.

A simplified description of the process by which hypoxia forms off Louisiana's coast would run as follows: extensive nutrient loading from the Mississippi and Atchafalaya

Rivers fuels the growth of large algal blooms offshore. As the algae dies and sinks through the water column, its decomposition leads to the depletion of oxygen, primarily in the lower, saltier layer of water. As oxygen levels drop below 2 milligrams per liter, marine life is unable to survive. Mobile organisms such as fish and shrimp migrate out of the hypoxic area if they can, while benthic (bottom-dwelling) organisms die off. Since systematic scientific mapping of the Gulf hypoxic zone began in 1985, the size that it can attain has more than doubled, from roughly 4000 square miles in 1991 to 8000 square miles in the summer of 2001.[2]

Concerns about the growth of this hypoxic zone, one of the largest in the world, center around its effects on the Gulf ecosystem, which sustains the most productive fishery in the lower 48 states. The rich fisheries off Louisiana's coast are in an already precarious position because of the dramatic ongoing loss of the state's coastal wetlands. As coastal marshes erode and break up, they dispense large amounts of detritus into the water, which fuel higher populations and harvests of fish and shrimp, but on a one-time basis. At some point, the loss of marsh habitat, so vital for the life-cycles of estuarine seafood, will lead to a sharp decline in those populations and the harvest levels.[3]

These concerns led to the hypoxia issue being addressed at the highest levels of the U.S. government. Under the Clinton administration, the White House
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Office of Science and Technology Policy initiated the *Integrated Assessment of Hypoxia in the Northern Gulf of Mexico* (completed in 2000), and with the additional mandate provided by the *Harmful Algal Bloom and Hypoxia Research and Control Act* of 1998[4], the Mississippi River/Gulf of Mexico Watershed Nutrient Task Force (hereafter referred to as the "Task Force") convened representatives of jurisdictional federal agencies and the governments of states along the river to create an action plan to reduce the growth of hypoxia in the Gulf.

The Task Force worked for two years in an often contentious atmosphere, since farm states in the Midwest were understandably concerned about the potential economic impacts on their agricultural sectors of remedies to reduce Gulf hypoxia. As someone who participated in the process as an observer and public commenter, I can say that it was a significant learning experience for all involved. At the end of that process, the Task Force fulfilled its charge and reached consensus on a plan.

The *Action Plan for Reducing, Mitigating, and Controlling Hypoxia in the Northern Gulf of Mexico* (hereafter referred to as the "Action Plan") lays out a national strategy to reduce "the frequency, duration, size, and degree of oxygen depletion" of the hypoxic zone.[5]

The Action Plan provides a basin-wide context for achieving this goal, relying on incentive-based, voluntary efforts for non-point sources of nitrogen loading, and existing regulatory controls for point sources.

Yet it does more than that. The Action Plan also makes clear that efforts to reduce Gulf hypoxia will deliver improvements to water quality throughout the basin:

> "water quality throughout the Mississippi [river basin] has been degraded by excess nutrients. Most states in the basin have significant river miles impaired by high nutrient concentrations, primarily phosphorus [and] excess nitrate, which can be a human health hazard."[6]

> "While the primary focus of this strategy is on reducing nitrogen loads to the northern Gulf, many of the actions proposed through this plan will also achieve

> basinwide improvements in surface-water quality… Likewise, actions taken to address local water quality problems in the basin will frequently also contribute to reductions in nitrogen loadings to the Gulf."[7]

This brings us to the importance of H.R. 3480, the "Upper Mississippi River Protection Act" introduced by Representative Kind. The Action Plan identifies as priorities the research and monitoring necessary to support its goals. Its approach of adaptive management is based on "implementation, monitoring, and research, to address known problems, clarify scientific uncertainties, and evaluate the effectiveness of efforts to reduce hypoxia."[8]

The expanded monitoring network for sediment and nutrient loss in the Upper Mississippi River Basin proposed by H.R. 3480 has the potential to significantly aid and complement implementation of the Gulf Hypoxia Action Plan in that region. In particular, H.R. 3480 could aid the Task Force in carrying out one of the actions called for in the Plan for this year:

> "By Spring 2002, States, Tribes, and Federal agencies within the Mississippi and Atchafalaya River Basins will expand the existing monitoring efforts within the Basin to provide both a coarse resolution assessment of the nutrient contribution of various sub-basins and a high resolution modeling technique in these smaller watersheds to identify additional management actions to help mitigate nitrogen losses to the Gulf and nutrient loadings to local waters…"[9]

Expanded monitoring programs throughout the basin are critical as well to the ongoing effort to reduce Gulf hypoxia (and to improve state and local water quality):

> "Effective implementation of [the Action Plan] will require a monitoring strategy that measures progress towards achieving both long-term and short-term goals. Feedback from such a monitoring strategy will facilitate an adaptive management framework that enables continual improvement of the Action Plan with increasing knowledge of the factors and processes controlling nutrient losses, their effects… and the effectiveness of management actions."[10]

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These considerations make clear the importance of the integration of data from all sources, and the consultation and collaboration with other public and private monitoring efforts called for in Sections 103 and 104 of H.R. 3480.[11] Just as critical is the integration of data into modeling and research, as called for in Title II, Sections 201, 202, and 203 of H.R. 3480. Again, there is significant potential for aiding and complementing implementation of the Gulf Hypoxia Action Plan, while accurately gauging the effectiveness of water quality improvements in the Upper Mississippi River Basin:

> "[The Action Plan] strategy must quantify environmental trends and… include periodic data analysis, interpretation, and reporting to all stakeholders that are involved with design and implementation of management, remediation, and restoration actions… Analysis and interpretation must use models that integrate knowledge across scales and hydrologic compartments from the smallest watersheds to the Mississippi and Atchafalaya River Basins and the Gulf of Mexico."[12]

While we discuss today the opportunities provided by the Action Plan and H.R. 3480, we would be remiss not to bring into focus other issues that could affect the success of those and similar efforts. The President's proposed budget for FY 2003 envisions significant reductions to the budget of the U.S. Geological Survey. Proposed reductions to funding for USGS Water Programs would negatively impact water data collection, water quality research and assessments, and university-based education and research related to water systems.

As our discussions today demonstrate so clearly, these proposed reductions are ill-advised and short-sighted. The work of the USGS and the pressing need for timely data and "sound science" dwarf whatever small fiscal gains might be achieved by cutting those programs, and are far too important to relegate to some unspecified future date. We need them now, today, and in the future.

The Gulf Hypoxia Action Plan was submitted to Congress in January of
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2001. The change of administrations and the turnover of top-level agency participants on the Task Force led to virtually no action on implementation being taken during most of 2001. The Task Force reconvened on February 7-8, 2002 in St. Louis for a constructive and positive meeting at which they reiterated the common ground they had attained and the resolve to act. Unfortunately, the challenge facing them has grown significantly. The funding situation at the federal level is far more complicated than it was a year ago, and most states face budgets that are becoming progressively tighter.

The Task Force will need to be creative and persistent in its efforts, and they will need the help of stakeholders as well as state and federal governments.
The Mississippi River Basin Alliance is committed to progress on the problem of hypoxia, and to cooperation throughout the basin on issues that affect the future of the river and the many people who depend on it, from farmers in the Midwest to shrimpers on the Louisiana coast.

One of several hopeful notes at the recent St. Louis meeting came from a number of presentations that were made to the Task Force about innovative strategies for nutrient management, wetland restoration, and on-farm conservation.[13] There is no shortage of new ideas coming from universities, non-governmental organizations, and farmers, but all of them will require monitoring and modeling efforts to gauge both their effectiveness and how our limited resources can best be spent.

Collaboration and coordination will be essential not only to progress on implementation of the Action Plan and reduction of Gulf hypoxia, but to improvement of water quality throughout the basin. One of the most exciting things about the Action Plan is that it provides a context for the beginning of basin-wide cooperation among states in the Mississippi Valley. H.R. 3480 can be an important part of this wider effort. This is a significant opportunity that should be grasped.

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[1] See *Integrated Assessment of Hypoxia in the Northern Gulf of Mexico,* May 2000. National Science and Technology Council Committee on Environment and Natural Resources, Washington, DC; also see Rabalais, Turner, and Scavia, "Beyond Science into Policy: Gulf of Mexico Hypoxia and the Mississippi River," *Bioscience* Vol. 52, no. 2, February 2002.

[2] Dr. Nancy Rabelais, Louisiana Universities Marine Consortium, Press release, July 26, 2001.

[3] For information on Louisiana's coastal crisis and restoration program, see *Coast 2050: Towards a Sustainable Coastal Louisiana*, Coastal Wetlands Conservation Task Force (www.lacoast.gov)

[4] Title VI of Public Law 105-383, section 604 (b), November 13, 1998.

[5] The *Action Plan* can be viewed at www.epa.gov/msbasin.

[6] *Action Plan*, p. 7.

[7] *Action Plan*, p.8.

[8] *Ibid.*, p.4

[9] *Ibib.,* p.13.

[10] *Ibid*., p.23.

[11] Section 103 (a), (b), (c), (d), and Section 104, respectively, H.R. 3480.

[12] *Action Plan*, p.25.

[13] These included Dr. Donald Hey of the Wetlands Initiative in Chicago, Dr. Suzie Greenhalgh of World Resources Institute, and Dr.s John Day and Bill Mitsch of Louisiana and Ohio State Universities, respectively. For a summary of the "suite" of actions available to address hypoxia, see the *Action Plan* as well as "Reducing Nitrogen Loading to the Gulf of Mexico from the Mississippi River Basin: Strategies to Counter a Persistent Ecological Problem," Mitsch, et.al, *Bioscience* Vol. 52, No. 5, May 2001.